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Security Guidelines Proposed for Research

National Academy of Sciences criteria are designed to allow maximum communication, safeguards for military research

By Alton K. Marsh

Washington—Four criteria for use in placing some scientific research under security restrictions while allowing free communication on the rest was proposed last week by a special panel of the National Academy of Sciences.

Basic or applied research would have to meet all these criteria before restrictions could be applied:

- A rapidly developing technology is involved, and the time from its basic science to its application is short.
- The technology has a direct military application, or it can be readily converted to direct military use and involves process- or production-related techniques.
- Its transfer would give the Soviet Union a significant, quick military advantage.
- The U. S. is the only source of information about the technology, or other friendly nations that could be the source have control systems as secure as this country's.

University Research

The panel found that the vast majority of research programs of universities should have no restrictions. The report is the first effort toward self-policing of scientific data by the scientific community since Adm. Bobby R. Inman, former deputy director of the Central Intelligence Agency, warned an American Assn. for the Advancement of Science meeting that scientists must safeguard data themselves to avoid having government agencies do it for them (AW&ST Feb. 8, p. 10).

Study supporters included: Defense Dept., National Science Foundation, American Assn. for the Advancement of Science, American Chemical Society, American Geophysical Union, Rockefeller Foundation, Andrew W. Mellon Foundation.

Panel Report

The panel was formed by the Committee on Science, Engineering and Public Policy. The report, Scientific Communication and National Security, found that most research does not meet the panel's criteria for restrictions.

The most critical areas are cryptography and very-high-speed integrated circuits, research areas also listed as targets of the Soviet Union in testimony earlier this year by Inman before the House Science and Technology Committee. Much of aerodynamics research does not require restrictions, the panel said.

"The danger to national security lies in the immersion of a suspect visitor in a research program over an extended period, not in casual observation of equipment or research data," the panel said. Such immersion can give the visitor an understanding of technical problem-solving in the areas of design and production.

Research areas that are sensitive but where classification is not appropriate can be protected through limited controls, such as specifications written into the contract before the work is begun.

The intelligence subpanel of the panel said there has been serious transfer of U. S. technology to the Soviet Union, but there is strong consensus that universities are a very small part of the problem.

The panel found a lack of evidence linking the academic community to losses of militarily relevant technology, but the intelligence community feels there is a clear trend toward greater Soviet effort in acquiring basic technology associated with universities. The effort is directed by the Soviet Military-Industrial Commission (VPK), the coordinating agency for all military research and development, and the State Committee for Science and Technology (GKNT).

The Soviets and Eastern bloc nations, the panel said, deploy intelligence officers to many countries to collect scientific and technical information. Students and scholars nominated to participate in exchange programs in the West are screened by intelligence services. Third world students are often questioned by Soviet intelligence for open information and may be recruited for intelligence purposes.

The Soviet Union has 100,000 people devoted to sifting and disseminating unclassified technical materials from the West and Japan, such as those materials available from the National Technical Information Service.

It is estimated that only a small percentage of the thousands of Soviets entering the U. S. each year have some intelligence affiliation. Those who do abuse their exchange program as follows:

- The visitor's technical activities and studies go beyond the agreed field of study.
- The visitor's time during the period of study is poorly accounted for, or excessive time is spent in library activities collecting information not related to the agreed fields of study.
- The visitor attempts to avoid restrictions imposed on the program itinerary.
- The visitor participates in clearly illegal activities, such as intelligence drops or attempts to examine secure containers of classified information.

The panel concluded that the best way to insure long-term security is through achievement of technical advance and breakthroughs.

"More than national security is at issue," the panel said. "Basic research investigations undertaken today may lead to applications in the long term (perhaps 10-20 years from now), often in unexpected ways. To attempt to restrict access to basic research would require casting a net of controls over wide areas of science that could be extremely damaging to overall scientific and economic advance as well as to military progress.

"The limited and uncertain benefits of such controls are, except in isolated areas, outweighed by the importance of scientific progress, which open communication accelerates, to the overall welfare of the nation. Security by accomplishment is a strategy that has served the nation well."

Better communication between the academic community and the intelligence

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community could be achieved through a comprehensive forum originally proposed by the National Commission on Research.

Most scientists and engineers are generally unaware of the scope of the Soviet intelligence-gathering effort. By the same token, key government officials lack sufficient appreciation of the dynamics that foster scientific progress, the panel said.

While there are benefits from exchange programs, and little hard evidence that they have had an adverse effect on national security, the panel sugggested ways they could be improved.

At least 50% of the visitors on both sides should be invited by the receiving side, based on publications and other measures of competence of the visitors. Bilateral agreements between countries should include a provision for cancellation of the program if the other side is not sending those visitors agreed upon, or is using the program for intelligence purposes.

The panel also criticized current government efforts to control technology transfer. It called for drastic streamlining of the 700-page militarily critical technologies list. The panel also recommended an exemption from export licensing for unclassified information that is available domestically and for that which is not directly and significantly connected with national security.

The amount of technology lost was difficult for the panel to determine, since federal agencies failed to keep adequate data. "The incompleteness of such data denies the government an opportunity to learn quickly about the nature and extent of the U. S. leakage problem, as well as the costs of its control efforts," the panel said.

To assist in the report, the panel contacted several companies and universities. Eight large firms said they understood the need to restrict certain classes of technical information. However, their consensus was:

- That controls on basic research would be harmful to their companies.
- That export control regulations have worked and are acceptable as they have been.
- That tightening of regulations would reduce the effectiveness of the companies, either by reducing its innovative and competitive position or by hampering its worldwide operations.

Presidents of five universities expressed grave concerns in a letter to Commerce Secretary Malcolm Baldridge, then Secretary of State Alexander M. Haig, Jr., and Defense Secretary Caspar W. Weinberger, about attempts to extend export controls to universities.

University Presidents

The five universities were Cornell University, Massachusetts Institute of Technology, California Institute of Technology, University of California and Stanford Univeristy.

The presidents said:

"Restricting the free flow of information among scientists and engineers would alter fundamentally the system that produced the scientific and technological lead that the government is now trying to protect and leave us with nothing to protect in the very near future."

C. Peter Magrath, president of the University of Minnesota, said the school's fundamental mission is teaching, research and public service.

"Neither our faculty nor our administrators were hired to implement government security actions," Magrath said. □

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